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09/712,925

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Shuji Ono

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EXAMINER

MISLEH, JUSTIN P

ART UNIT

PAPER NUMBER

2622

NOTIFICATION DATE

DELIVERY MODE

01/24/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

# Office Action Summary

Application No.

09/712,925

Applicant(s)

ONO, SHUJI

Examiner

Justin P. Misleh

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 and 4 - 32 is/are pending in the application.
- 4a) Of the above claim(s) 11 - 13, 15 - 21, 27 - 29, 31, and 32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4 - 10, 14, 22 - 26, and 30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 30, 2007 has been entered.

### ***Response to Arguments***

2. Applicant's arguments, see page 16, filed October 30, 2007, with respect to the rejection of Claims 1 and 22 under 35 U.S.C. 103(a) as being unpatentable over Lyons in view of Anderson have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of a new interpretation of Lyons.

3. Specifically, Lyons' figure 9 shows the inputting of parallax images, as described by Applicant on pages 15 – 17 of the remarks. The Examiner previously relied upon the tracking system shown in Lyons' figure 1. The tracking system of figure 9 shows a narrow angle camera (51) and a wide angle camera (51) both attached to a PT base (56) in different locations but are both aimed in a same spot to capture images of an object (see column 10, lines 63 – 66). The images captured by these cameras are input to the tracking system as parallax images. In other words, the images have parallax with respect to each other.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1, 5 – 10, 14, 22 – 26, and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyons (US 6 734 911 B1) in view of Anderson (US 7 106 376 B1).

The Examiner believes independent Claims 1 and 22 are corresponding apparatus and method claims, respectively. Accordingly, they will be rejected together.

6. For **Claims 1 and 22**, Lyons discloses, as shown in figure 9, an image processing apparatus (figure 9), comprising:

an image data input unit (55) for inputting image data of a plurality of objects (21, 21a, 22, and 23 – see figures 2A and 2B) including a main subject (21);

a range setting unit (55) for restricting a searching range in the depth direction (either “wide-angle field of view” or “narrow-angle field of view”; see column 10, lines 46 – 62 and column 11, lines 1 – 17); Lyons cannot search for the main object to an infinite distance from the camera; thus, the searching range must be restricted in that respect. Secondly, whatever is outside of the camera's field of view cannot be searched at any depth.) for searching said main subject (21) from the plurality of objects (21, 21a, 22, and 23) using the input image data ; and

a partial image extracting unit (55) for extracting a partial image (“central region 26” or “peripheral region 27”) including said main subject (21) from said image data, a depth direction

of said partial image being restricted to said searching range set by said range setting unit (see column 7, lines 55 – 65, column 8, line 11 – 22, and column 10, lines 46 – 62); and

a main subject detecting unit (15/222) for detecting a main subject (21) from said partial image (“central region 26”) and receiving main subject information (see column 7, line 55 – column 8, line 22), wherein

wherein said image data input unit comprises a means for inputting a parallax image (see figure 9), which picks up an image of the plurality of objects (21, 21a, 22, and 23) from a plurality of different perspectives, and the image processing apparatus (222) further comprises a depth distribution information receiving unit for receiving said depth distribution information based on said parallax image (28).

Lyons discloses a tracking systems that first searches for the main object in the a narrow field of view and then expands the search to a wide angle field of view if the main object leaves the narrow field of view. Lyons proposes a series of systems to accomplish this task -- the system in figure 1A uses a special type of optics where both fields of view are nearly aligned and the system in figure 9 uses a two-camera system to input a parallax image. The main object is searched for in either narrow angle image or the wide angle image; however, both images include a same spot. While Lyons discloses restricting the searching range to a single predetermined distance, either a depth of field corresponding to a “wide-angle” FOV 27 or a “narrow-angle” FOV 26, in the depth direction for search a main subject from the plurality of objects;

Lyons is silent with respect to extracting the main subject based on depth distribution information indicating a distance to each of said plurality of objects included in said image data.

On the other hand, Anderson also discloses an image processing apparatus including a range setting unit and an image extracting unit for extracting said main subject from within the set searching range. Specifically, Anderson teaches, as shown in figures 1, 3A, 3B, 4B, an image processing apparatus including a range setting unit and an image extracting unit for extracting said main subject (e.g., 504) from among a plurality of objects (e.g., 502, 508, and 506) from within the set searching range (500). Anderson further teaches, as shown in figure 7 and as stated in column 8 (line 1) – column 9 (line 57), extracting the main subject (504) from the image data (500) based on depth distribution information (see figure 6A) indicating a distance to each of said plurality of objects included in said image data (see column 8, lines 1 – 13).

Hence, at the time invention was made, it would have been obvious to one with ordinary skill in the art to have included the extracting the main subject from the image data based on depth distribution information indicating a distance to each of said plurality of objects included in said image data (as taught by Anderson) in the image processing apparatus (disclosed by Lyons) for the advantage of *reducing undesirable image characteristics and improve image quality* (see column 1, lines 61 and 62).

7. As for **Claims 5 and 23**, Lyons discloses, as shown in figures 9, 2A, 2B, and 8B and as stated in column 10 (lines 46 – 62), said range setting unit (15) comprises a means for setting a first searching range (“narrow-angle field of view” 26) and a means for setting a second searching range (“wide-angle field of view” 27), which differs from said first searching range (see column 5, lines 61 – 67);

said partial image extracting unit (15/222) comprises a means for extracting the part of the plurality of objects (21, 21a, 22, and 23) included in said first searching range (Step S91) as a

partial image and a means for extracting the part the plurality of objects (21, 21a, 22, and 23) included in said second searching range (Step S93) as a second partial image; and

said main subject detecting unit (15/222) comprises a means for detecting (Step S91) said main subject (21) from said first partial image and a means for detecting (Step S93) said main subject (21) from said second partial image when said main subject is not detected from said first partial image (see figure 8B).

8. As for **Claim 6**, Lyons discloses, as shown in figure 8B, wherein said range setting unit (15) sets a predetermined depth length (“narrow-angle field of view”) as said first searching range and sets the depth length contiguous (see column 7, line 55 – column 8, line 22; and column 10, lines 46 – 62) to said first searching range as said second searching range.

9. As for **Claims 7, 8, 24, and 25**, Lyons discloses as stated in column 5 (lines 52 – 57), wherein said range setting unit (15) sets the depth length (“narrow-angle field of view”), which includes an independent object (21) existing at the nearest distance (i.e., zoomed-in), as said first searching range based on a depth distribution information (see column 5, lines 52 – 57) and sets the depth length contiguous to said first searching range as said second searching range (see figure 8B).

10. As for **Claim 9**, Lyons discloses, as indicated above, said range setting unit (15) sets a different said searching range (Step S93) when said main subject is not detected (Step S92) in said searching range set by said range setting unit (15); said partial image extracting unit extracts again (Steps S91) said partial image; and detects again said main subject.

11. As for **Claims 10 and 26**, Lyons discloses, as shown in figures 8B and as stated in column 10 (lines 46 – 62), wherein said image data input unit is an image capturing unit (17/51)

for picking up an image of the plurality of objects (21, 21a, 22, and 23), comprising: a photographic condition setting unit (15) for setting a photographic condition (zoom condition) based on said main subject information; and an image capturing control unit for controlling imaging by said image capturing unit based on said photographic condition (see figure 8B).

12. As for **Claims 14 and 30**, Lyons inherently discloses wherein said image data input unit is an image capturing unit, which captures an image of said object based on a photographic timing signal. However, Lyons is silent with respect to setting a photographic timing condition relating to the main subject, wherein said photographic timing is predetermined and stored.

However, Official Notice (MPEP § 2144.03) is taken that both the concepts and advantages of providing a timing condition storing unit for storing a predetermined photographic timing condition relating to said main subject; and a timing signal output unit for outputting said photographic timing signal to said image capturing unit when said main subject satisfies said photographic timing condition are well known and expected in the art. At the time the invention was made, it would have been obvious to one with ordinary skill in the art to have a timing condition storing unit for storing a predetermined photographic timing condition relating to said main subject; and a timing signal output unit for outputting said photographic timing signal to said image capturing unit when said main subject satisfies said photographic timing condition for the advantage *optimizing exposure and dynamic range of the main subject*.

13. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Lyons in view of Anderson in further view of Hanna et al. (US 6 714 665 B1).



14. As for **Claim 4**, Lyons (as modified by Anderson) discloses a main subject detecting unit (15/222) for detecting a main subject (21) from said partial image (“central region 26”) and receiving main subject information.

However, Lyons (as modified by Anderson) does not disclose a distinctive parts detecting unit for detecting from said partial image, a distinctive part, which should be included in said main subject; and an information receiving unit for receiving said main subject information based on the position of said distinctive part detected by said distinctive parts detecting unit.

On the other hand, Hanna et al. also disclose an image processing apparatus including an image data input unit, a range setting unit, and a partial image extracting unit. More specifically, Hanna et al. teach, as shown in figures 1A and 1B, a distinctive parts detecting unit (computer 20) for detecting from said partial image (NFOV camera 14), a distinctive part (“user’s eye” – see figure 1B), which should be included in said main subject; and an information receiving unit (18) for receiving said main subject information based on the position of said distinctive part detected by said distinctive parts detecting unit (see column 5, lines 40 – 51 and column 7, lines 17 – 30).

As stated in column 1 (lines 50 – 53) of Hanna et al., at the time the invention was made, it would have been obvious to one with ordinary skill in the art to have included a distinctive parts detecting unit and an information receiving unit (as taught by Hanna et al.) in the image processing apparatus (disclosed by Lyons – as modified by Anderson), for the advantage “identifying objects of individuals in a passive way that is both fast and accurate.”

***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Justin P Misleh whose telephone number is 571.272.7313. The Examiner can normally be reached on Monday through Friday from 8:00 AM to 5:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Lin Ye can be reached on 571.272.7372. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**/Justin P. Misleh/  
Examiner, GAU 2622  
January 17, 2008**